

IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

1-2. (Canceled).

3. (Currently Amended) The acoustic coding apparatus according to claim 21 4, wherein the base layer coding section encodes the input signal using a code excited linear prediction coding.

4. (Canceled).

5. (Currently Amended) The acoustic coding apparatus according to claim 21 [[4]], wherein the enhancement layer coding section transforms the residual ~~difference~~ signal from the a time domain to the a frequency domain using a modified discrete cosine transform.

6. (Currently Amended) The acoustic coding apparatus according to claim 5 [[4]], wherein the enhancement layer coding section encodes only part of a predetermined band, shown by the domain information, of the residual ~~difference~~ signal transformed to the a frequency domain.

7. (Currently Amended) The acoustic coding apparatus according to claim 5 ~~[[4]]~~, further comprising a perceptual masking section that calculates perceptual masking expressing an amplitude value which does not affect to auditory perception, wherein the enhancement layer coding section does not regard signals in the perceptual masking as coding targets.

8. (Currently Amended) The acoustic coding apparatus according to claim 7, wherein the enhancement layer coding section calculates a difference between the perceptual masking and the a residual signal, regards a residual signal for which the difference is relatively large as a coding target and encodes ~~the~~ positions in the a time domain and the frequency domain in which the residual signal exists on the two dimensional plane.

9-10. (Canceled).

11. (Currently Amended) The acoustic decoding apparatus according to claim 22 ~~40~~, wherein the base layer decoding section decodes the base layer ~~the first~~ coded code using ~~a decoding process of a code excited linear prediction coding~~.

12-20. (Cancelled).

21. (New) An acoustic coding apparatus comprising:
a base layer coding section that encodes an input signal per base frame and obtains a base layer coded code;

a decoding section that decodes the base layer coded code and obtains a decoded signal;

a subtraction section that obtains a residual signal between the input signal and the decoded signal;

a frame division section that divides the residual signal into a plurality of residual signals in units of an enhancement frame having a shorter time length than the base frame; and

an enhancement layer coding section that encodes the plurality of residual signals and obtains an enhancement layer coded code,

wherein the enhancement layer coding section comprises:

a frequency domain transform section that transforms the plurality of residual signals in the frequency domain and obtains a plurality of frequency domain transform coefficients represented on a two dimensional plane comprised of a time axis and a frequency axis;

a domain divider that divides the plurality of frequency domain transform coefficients into a plurality of domains on the two dimensional plane such that each domain includes at least a plurality of frequency domain transform coefficients which are continuous in a time direction;

a quantization domain determining section that determines a part of the plurality of domains to be quantization targets and outputs domain information showing the part of the plurality of domains; and

a quantization domain coding section that encodes the domain information and obtains the enhancement layer coded code.

22. (New) An acoustic decoding apparatus comprising:

a base layer decoding section that decodes a base layer coded code which is encoded at a coding side in predetermined base frame units and obtains a base layer signal; and

an enhancement layer decoding section that decodes an enhancement layer coded code which is encoded at the coding side in units of an enhancement frame having a shorter time length than a base frame and obtains an enhancement layer signal;

wherein the enhancement layer decoding section comprises:

a domain divider that, on a two dimensional plane comprised of a time axis and a frequency axis, divides a plurality of frequency domain transform coefficients into a plurality of domains such that each domain includes at least a plurality of frequency transform coefficients which are continuous in a time direction;

a quantization domain determining section that decodes domain information showing domains which are quantization targets at the coding side and determines quantization target domains from the plurality of domains using the domain information; and

a transform coefficient decoding section that decodes the frequency domain transform coefficients included in the quantization target domains and obtains the enhancement layer signal.

23. (New) The acoustic decoding apparatus according to claim 22, wherein the transform coefficient decoding section transforms the frequency domain transform coefficients in a time domain signal using an inverse modified discrete cosine transform.

24. (New) An acoustic signal transmission apparatus comprising:

- an acoustic input section that converts an acoustic signal to an electric signal;
- an analog-to-digital conversion section that converts the signal outputted from the acoustic input section to a digital signal;
- an acoustic coding section that encodes the digital signal outputted from the analog-to-digital conversion section and generates a coded code;
- a radio frequency modulation section that modulates the coded code outputted from the acoustic coding section to a radio frequency signal; and
- a transmission antenna that converts the signal outputted from the radio frequency modulation section to a radio wave and transmits the signal, wherein:

the acoustic coding section comprises:

- a base layer coding section that encodes the digital signal per base frame and obtains a base layer coded code;
- a decoding section that decodes the base layer coded code and obtains a decoded signal;
- a subtraction section that obtains a residual signal between the digital signal and the decoded signal;
- a frame division section that divides the residual signal into a plurality of residual signals in units of an enhancement frame having a shorter time length than the base frame;

an enhancement layer coding section that encodes the plurality of residual signals and obtains an enhancement layer coded code; and

an output section that outputs the coded code including the base layer coded code and the enhancement layer coded code; and

the enhancement layer coding section comprises:

a frequency domain transform section that transforms the plurality of residual signals in the frequency domain and obtains a plurality of frequency domain transform coefficients represented on a two dimensional plane comprised of a time axis and a frequency axis;

a domain divider that divides the plurality of frequency domain transform coefficients into a plurality of domains on the two dimensional plane such that each domain includes at least a plurality of frequency domain transform coefficients which are continuous in a time direction;

a quantization domain determining section that determines a part of the plurality of domains to be quantization targets and outputs domain information showing the part of the plurality of domains; and

a quantization domain coding section that encodes the domain information and obtains the enhancement layer coded code.

25. (New) An acoustic signal reception apparatus comprising:

a reception antenna that receives a radio wave;

a radio frequency demodulation section that demodulates a signal received by the reception antenna and generates acoustic information;

an acoustic decoding section that decodes the acoustic information obtained by the radio frequency demodulation section and generates a decoded signal;

a digital-to-analog conversion section that converts the decoded signal outputted from the acoustic decoding section to an analog signal; and

an acoustic output section that converts the analog signal outputted from the digital-to-analog conversion section to an acoustic signal, wherein:

the acoustic decoding section comprises:

a base layer decoding section that extracts a base layer coded code which is encoded in units of a predetermined base frame, from the acoustic information and obtains a base layer signal by decoding the base layer coded code;

an enhancement layer decoding section that extracts an enhancement layer coded code which is encoded at a coding side in units of an enhancement frame having a shorter time length than the base frame, from the acoustic information and obtains an enhancement layer signal by decoding the enhancement layer coded code; and

an output section that outputs the decoded signal including the base layer signal and the enhancement layer signal; and

the enhancement layer decoding section comprises:

a domain divider that, on a two dimensional plane comprised of a time axis and a frequency axis, divides a plurality of frequency domain transform coefficients into a

plurality of domains such that each domain includes at least a plurality of frequency domain transform coefficients which are continuous in a time direction;

a quantization domain determining section that extracts domain information showing domains which are quantization targets at the coding side, from the acoustic information and determines quantization target domains from the plurality of domains using the domain information; and

a signal decoding section that decodes the frequency domain transform coefficients included in the quantization target domains and obtains the enhancement layer signal.

26. (New) A communication terminal apparatus comprising the acoustic signal transmission apparatus according to claim 24.

27. (New) A communication terminal apparatus comprising the acoustic signal reception apparatus according to claim 25.

28. (New) A base station apparatus comprising the acoustic signal transmission apparatus according to claim 24.

29. (New) A base station apparatus comprising the acoustic signal reception apparatus according to claim 25.

30. (New) An acoustic coding method comprising:

a base layer coding step of encoding an input signal per base frame and generating a base layer coded code;

a decoding step of decoding the base layer coded code and generating a decoded signal;

a subtracting step of generating a residual signal between the input signal and the decoded signal; and

a frame division step of dividing the residual signal into a plurality of residual signals in units of an enhancement frame having a shorter time length than the base frame; and

an enhancement layer coding step of encoding the plurality of residual signals and generating an enhancement layer coded code,

wherein the enhancement layer coding step comprises:

a frequency domain transform step of transforming a plurality of residual signals in the frequency domain and generating a plurality of frequency domain transform coefficients represented on a two dimensional plane comprised of a time axis and a frequency axis;

a domain division step of dividing the plurality of frequency domain transform coefficients into plurality of domains on the two dimensional plane such that each domain includes at least a plurality of frequency domain transform coefficients which are continuous in a time direction;

a quantization domain determining step of determining a part of the plurality of domains to be quantization targets and outputting domain information showing the part of the plurality of domains; and

a quantization domain coding step of encoding the domain information and generating the enhancement layer coded code.

31. (New) An acoustic decoding method comprising:

a base layer decoding step of decoding a base layer coded code which is encoded at a coding side in predetermined base frame units and generating a base layer signal; and

an enhancement layer decoding step of decoding an enhancement layer coded code which is encoded at the coding side in units of an enhancement frame having a shorter time length than the base frame and generating an enhancement layer signal;

wherein the enhancement layer decoding step comprises:

a domain division step of, on a two dimensional plane comprised of a time axis and a frequency domain, dividing a plurality of frequency domain transform coefficients into a plurality of domains such that each domain includes at least a plurality of frequency domain transform coefficients which are continuous in a time direction;

a quantization domain determining step of decoding domain information showing domains which are quantization targets at the coding side and determines quantization target domains from the plurality of domains using the domain information; and

a transform coefficient decoding step of decoding the frequency domain transform coefficients included in the quantization target domains and generating the enhancement layer signal.